US Army Corps of Engineers®

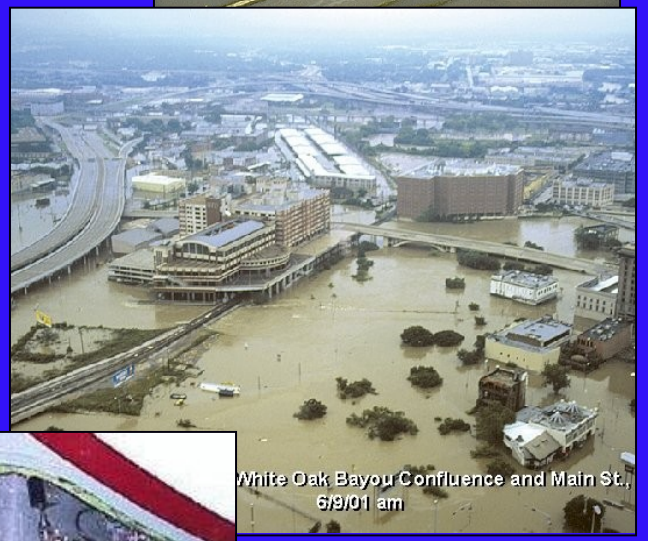
R&D Program: TOWNS

Work Unit: High Resolution Nowcasting and Forecasting of Precipitation During Landfalling Tropical Cyclones

Needs & Problems Addressed:

Objectives:

- Acquire detailed, high-accuracy rain-rate data in landfalling tropical cyclones to determine the natural precipitation variability in these systems as functions of space and time.
- Use these data to improve weather surveillance radar estimates of cyclone rainfall rates.



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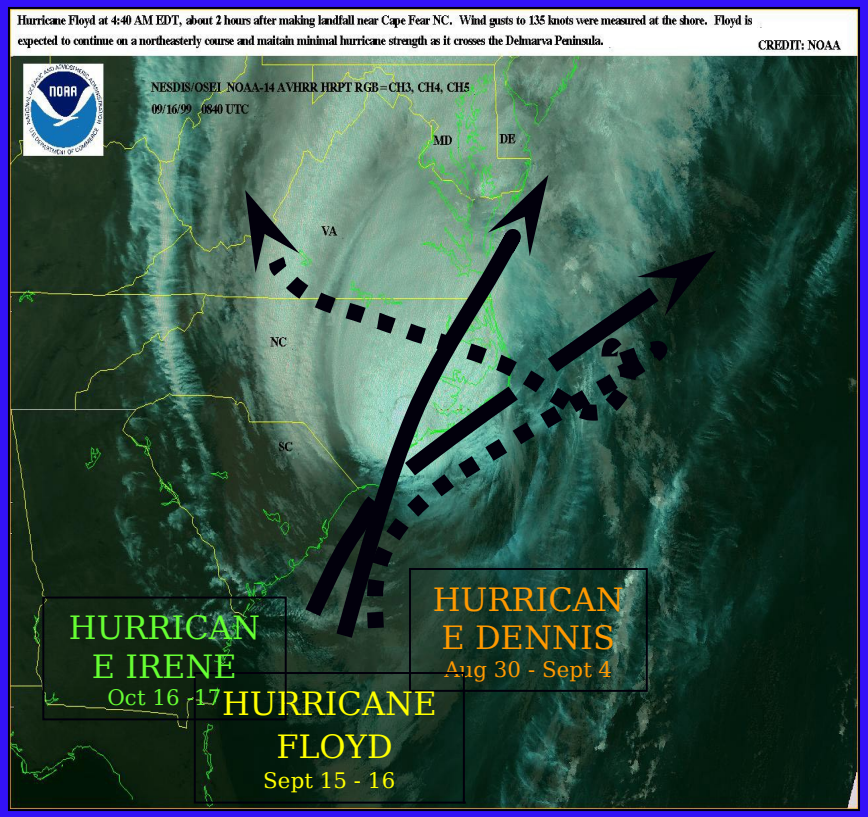
Work Unit Funding Profile:

FY03	FY04	FY05	Total
$ 53k	$ 45.5k	$ 0 k	$ 98.5k

Comments on funding plan:

Modest funding request heavily leveraged from other agencies


Hurricane Floyd at 4:40 AM EDT, about 2 hours after making landfall near Cape Fear NC. Wind gusts to 135 knots were measured at the shore. Floyd is expected to continue on a northeasterly course and maitain minimal hurricane strength as it crosses the Delmarva Peninsula.
CREDIT: NOAA
NESDIS/OSEI NOAA-14 AVHRR HRPT RGB=CH3, CH4, CH5
09/16/99 0840 UTC
MD
DE
VA
NC
SC
HURRICAN E IRENE
Oct 16 -17
HURRICANE FLOYD
Sept 15 - 16
HURRICAN E DENNIS
Aug 30 - Sept 4

NOTE - Six storms (Bertha, Fran, Bonnie, Dennis, Floyd & Irene) have impacted or made land fall on the North Carolina coast in the last five years

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Business Program/Missions Areas Supported:

- Inland Navigation __ %
- Coastal Navigation __ %
- Coastal Storm Damage Reduction 40 %
- Inland Flood Control/Damage Reduction 40 %
- Environmental Protection & Quality __ %
- Multi-Purpose (Hydropower, Rec & Water Supply) __ %
- Emergency Management 20 %
- Regulatory __ %
- Support for Others __ %

(Must to add to 100%) Total: 100 %

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CW Strategic Goals Check List: (check if applies)

- Provide sustainable water resources development & mgmt _X_
- Restore past environment degradation ___
- Provide project services of high quality _X_
- Reduce losses from natural & manmade hazards _X_
- Supports being a world class technical leader _X_
- Addresses strategic or system needs in a framework or integrated approach by developing:
  - Methods or decision support tools _X_
  - Technology to improve life cycle productivity _X_
  - Technology to monitor systems, provide feedback and develop operating guidance _X_

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Which "short term" field needs does this support:

- Improved disaster recovery and hazard mitigation response
- Availability of critical technology for hurricane-related EM activities
- Support effective decision-making for Corps Water Management System

Field Review Group Relative Ranking

- FRG planned for 21-22 AUG 02

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Listening Sessions Check List: (check if applies)

- Improves data sharing/exchange with the public in these areas:
  - Provides one stop shop for maps & data for basin wide planning ___
  - Provides data to make informed decisions **_X_**
  - Provides a system for basin wide planning ___
  - Provides information about what is happening at Corps facilities **_X_** (up to date web sites)
- Tech Transfer plan to include educating the public **_X_**
- Coordinate research, models, analysis with regulatory agencies to insure results will be accepted **_X_**
- Develop R&D products:
  - For watershed management plans, not just at the project level **_X_**
  - To include aesthetics as components of all projects ___
- Create better models for ground & surface water ___

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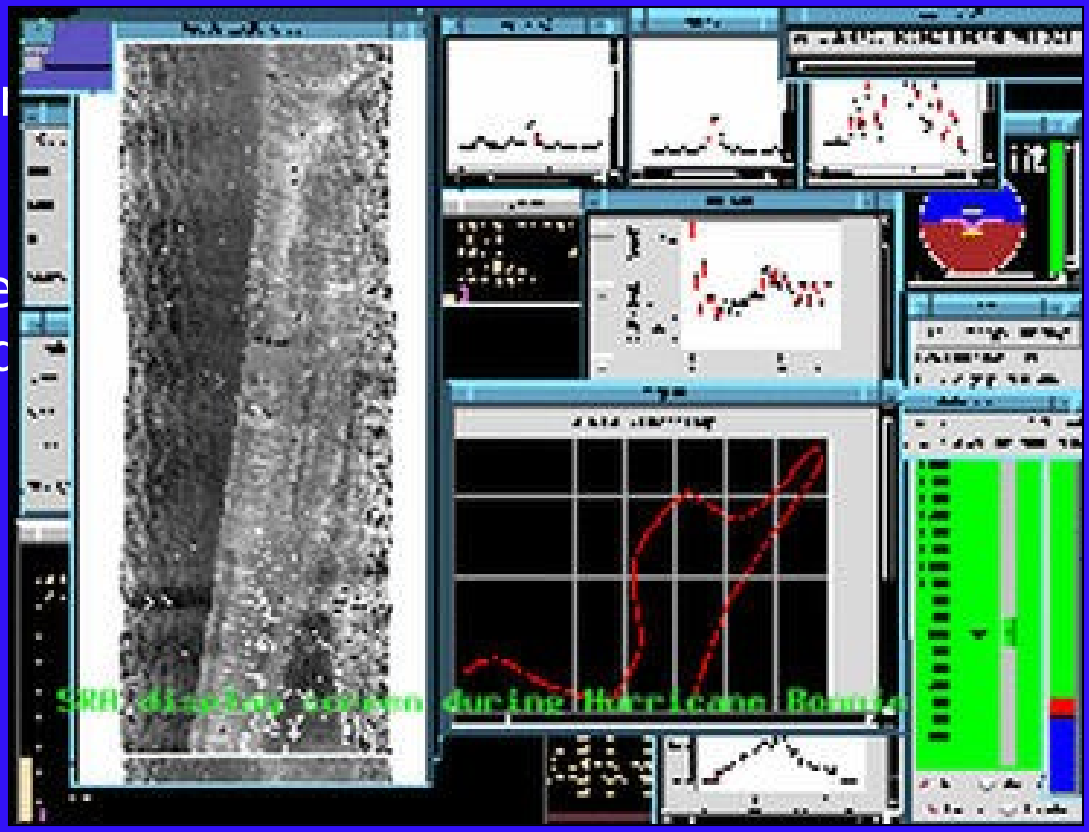
Products:

- High resolution concurrer tropical cyclone rainfall data derived by independent measureme techniques, analysis, and interpretation
- TN: Summary of FY03 Research Results
- Workshop with federal hydrological community
- Journal Paper



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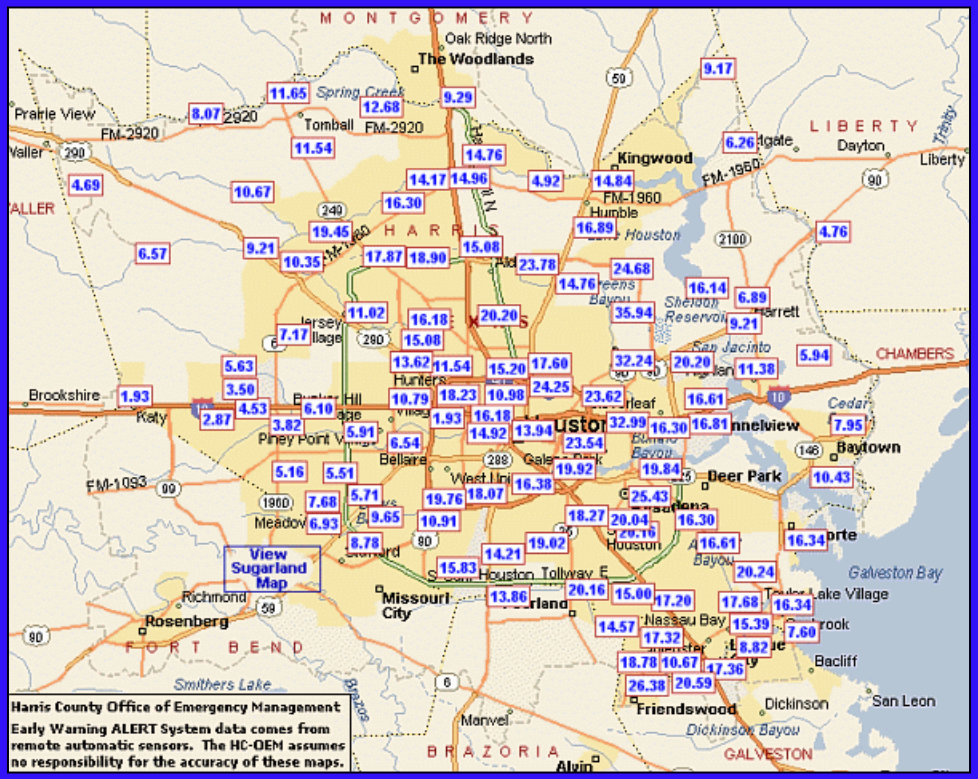
Benefits

- Direct:
  - Emergency operations
  - Disaster recovery
  - CWMS
- Indirect:
  - Reduce loss of life and property
  - Lessons learned will be applicable to other flood reduction efforts



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Technology Transfer Plan:

- Data, derived results, and conclusions reached by the team members will be disseminated to their respective agencies.
- Workshop in year two where project results will be presented and discussed.
- Integration efforts with the ENGLink and CWMS programs

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Why should the Corps fund this R&D, instead of private industry and/or others:

- Emergency management typically falls to Federal agencies; Corps is part of interagency group dealing with hurricanes

What is Impact if not started:

- Poor/ineffective disaster recovery affects social, environmental, economic recovery
- Ineffective use of Federal resources